

## Refine Search

### Search Results -

Terms	Documents
L2 and crystalli\$6 and hydrol\$7 cyanohydrin	13

**Database:**

US Pre-Grant Publication Full-Text Database  
 US Patents Full-Text Database  
 US OCR Full-Text Database  
 EPO Abstracts Database  
 JPO Abstracts Database  
 Derwent World Patents Index  
 IBM Technical Disclosure Bulletins

**Search:**

cynaohydrin same hydroxycarboxylic acid  
 same solvent

[Refine Search](#)
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[Interrupt](#)

### Search History



DATE: Sunday, March 21, 2004 [Printable Copy](#) [Create Case](#)

**Set Name Query**  
 side by side

**Hit Count Set Name**  
 result set

*DB=PGPB,USPT,USOC,EPAB,JPAB,DWPI,TDBD; PLUR=YES; OP=ADJ*

<u>L7</u>	l2 and crystalli\$6 and hydrol\$7 cyanohydrin	13	<u>L7</u>
<u>L6</u>	l2 and crystalli\$6 and hydrol\$7	29	<u>L6</u>
<u>L5</u>	l2 and crystalli\$6	32	<u>L5</u>
<u>L4</u>	cynaohydrin and hydroxycarboxylic acid and solvent	0	<u>L4</u>
<u>L3</u>	cynaohydrin same hydroxycarboxylic acid same solvent	0	<u>L3</u>
<u>L2</u>	cyanohydrin same hydroxycarboxylic acid	75	<u>L2</u>
<u>L1</u>	cynaohydrin same hydroxycarboxylic acid	0	<u>L1</u>

END OF SEARCH HISTORY

## Hit List

Clear	Generate Collection	Print	Fwd Refs	Bkwd Refs
Generate OACS				

Search Results - Record(s) 1 through 10 of 13 returned.

☐ 1. Document ID: US 20030215859 A1

Using default format because multiple data bases are involved.

L7: Entry 1 of 13

File: PGPB

Nov 20, 2003

PGPUB-DOCUMENT-NUMBER: 20030215859

PGPUB-FILING-TYPE: new

DOCUMENT-IDENTIFIER: US 20030215859 A1

TITLE: DNA shuffling of monooxygenase genes for production of industrial chemicals

PUBLICATION-DATE: November 20, 2003

INVENTOR-INFORMATION:

NAME	CITY	STATE	COUNTRY	RULE-47
Affholter, Joseph A.	Zephyr Cove	NV	US	
Davis, S. Christopher	San Francisco	CA	US	
Selifonov, Sergey A.	Plymouth	MN	US	

US-CL-CURRENT: [435/6](#); [435/189](#), [435/320.1](#), [435/325](#), [435/7.1](#)

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments	Claims	KMOC	Draw D
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☐ 2. Document ID: US 20030171614 A1

L7: Entry 2 of 13

File: PGPB

Sep 11, 2003

PGPUB-DOCUMENT-NUMBER: 20030171614

PGPUB-FILING-TYPE: new

DOCUMENT-IDENTIFIER: US 20030171614 A1

TITLE: Method for producing alpha-hydroxycarboxylic acid

PUBLICATION-DATE: September 11, 2003

INVENTOR-INFORMATION:

NAME	CITY	STATE	COUNTRY	RULE-47
Okuda, Norimasa	Ibaraki		JP	
Semba, Hisashi	Ibaraki		JP	
Dobashi, Yukio	Ibaraki		JP	

US-CL-CURRENT: 562/579

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments	Claims	KWIC	Draw. De
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☐ 3. Document ID: US 20010041359 A1

L7: Entry 3 of 13

File: PGPB

Nov 15, 2001

PGPUB-DOCUMENT-NUMBER: 20010041359

PGPUB-FILING-TYPE: new

DOCUMENT-IDENTIFIER: US 20010041359 A1

TITLE: Process for the preparation of optically and chemically highly pure (R) - or (S) -alpha- hydroxycarboxylic acids

PUBLICATION-DATE: November 15, 2001

## INVENTOR-INFORMATION:

NAME	CITY	STATE	COUNTRY	RULE-47
Pochlauer, Peter	Linz		AT	
Mayrhofer, Herbert	Engerwitzdorf		AT	

US-CL-CURRENT: 435/146; 562/580

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments	Claims	KWIC	Draw. De
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☐ 4. Document ID: US 6653498 B2

L7: Entry 4 of 13

File: USPT

Nov 25, 2003

US-PAT-NO: 6653498

DOCUMENT-IDENTIFIER: US 6653498 B2

TITLE: Process for preparing optically active cyanohydrins and secondary products

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments	Claims	KWIC	Draw. De
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☐ 5. Document ID: US 6605430 B1

L7: Entry 5 of 13

File: USPT

Aug 12, 2003

US-PAT-NO: 6605430

DOCUMENT-IDENTIFIER: US 6605430 B1

TITLE: DNA shuffling of monooxygenase genes for production of industrial chemicals

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments	Claims	KWIC	Draw. De
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☐ 6. Document ID: US 4663463 A

L7: Entry 6 of 13

File: USPT

May 5, 1987

US-PAT-NO: 4663463

DOCUMENT-IDENTIFIER: US 4663463 A

TITLE: Mandelic acid derivatives and mandelonitriles, processes for producing them, and their use for combating microorganisms

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments	Claims	KWIC	Draw. De
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☐ 7. Document ID: US 4533659 A

L7: Entry 7 of 13

File: USPT

Aug 6, 1985

US-PAT-NO: 4533659

DOCUMENT-IDENTIFIER: US 4533659 A

TITLE: Microbicidal 2-(1H-1,2,4-triazolylmethyl-1'-yl)-2-siloxy-2-phenyl-acetates

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments	Claims	KWIC	Draw. De
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☐ 8. Document ID: US 4528284 A

L7: Entry 8 of 13

File: USPT

Jul 9, 1985

US-PAT-NO: 4528284

DOCUMENT-IDENTIFIER: US 4528284 A

TITLE: Fungicidal 2-(azolylmethyl-1'-yl)-2-aryl-2-(cyano, alkoxy carbonyl, alkylthiocarbonyl and aminocarbonyl)-2-phosphorus acid esters

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments	Claims	KWIC	Draw. De
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☐ 9. Document ID: US 4517194 A

L7: Entry 9 of 13

File: USPT

May 14, 1985

US-PAT-NO: 4517194

DOCUMENT-IDENTIFIER: US 4517194 A

TITLE: Azolylmandelic acid derivatives and use thereof for controlling microorganisms

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments	Claims	KWIC	Draw. De
------	-------	----------	-------	--------	----------------	------	-----------	-----------	-------------	--------	------	----------

☐ 10. Document ID: EP 1160235 A2

L7: Entry 10 of 13

File: EPAB

Dec 5, 2001

PUB-NO: EP001160235A2  
DOCUMENT-IDENTIFIER: EP 1160235 A2  
TITLE: A method for producing alpha-hydroxycarboxylic acid

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments	Claims	KWIC	Draw. De
Clear	Generate Collection	Print	Fwd Refs	Bkwd Refs	Generate OACS							
Terms										Documents		
L2 and crystalli\$6 and hydrol\$7 cyanohydrin										13		

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## Hit List

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Search Results - Record(s) 11 through 13 of 13 returned.

☐ 11. Document ID: JP 2003206255 A

L7: Entry 11 of 13

File: DWPI

Jul 22, 2003

DERWENT-ACC-NO: 2003-783260

DERWENT-WEEK: 200374

COPYRIGHT 2004 DERWENT INFORMATION LTD

TITLE: Manufacture of optically active (alpha)-hydroxycarboxylic acid for pharmaceutical intermediate, involves extracting (alpha)-hydroxycarboxylic acid from solution obtained by hydrolyzing cyanohydrin, using immiscible solvent

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments	Claims	KWIC	Draw. De
------	-------	----------	-------	--------	----------------	------	-----------	-----------	-------------	--------	------	----------

☐ 12. Document ID: US 20030171614 A1, EP 1160235 A2, JP 2001342165 A, JP 2001348356 A, JP 2002155013 A

L7: Entry 12 of 13

File: DWPI

Sep 11, 2003

DERWENT-ACC-NO: 2002-068335

DERWENT-WEEK: 200367

COPYRIGHT 2004 DERWENT INFORMATION LTD

TITLE: Production of an alpha-hydroxycarboxylic acid useful as a pharmaceutical intermediate involves hydrolyzing cyanohydrin in the presence of a hydrocarbon solvent

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments	Claims	KWIC	Draw. De
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☐ 13. Document ID: EP 1148042 A2, JP 2001354616 A, CA 2344004 A1, HU 200101531 A2, US 20010041359 A1

L7: Entry 13 of 13

File: DWPI

Oct 24, 2001

DERWENT-ACC-NO: 2001-640590

DERWENT-WEEK: 200216

COPYRIGHT 2004 DERWENT INFORMATION LTD

TITLE: Preparation of optically active hydroxycarboxylic acids by crystallizing crude material from aromatic hydrocarbon, is useful as fodder additives and intermediates

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments	Claims	KMOC	Draw Data
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Clear	Generate Collection	Print	Fwd Refs	Bkwd Refs	Generate OACS
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Terms	Documents
L2 and crystalli\$6 and hydrol\$7 cyanohydrin	13

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(FILE 'HOME' ENTERED AT 14:07:09 ON 21 MAR 2004)

FILE 'REGISTRY' ENTERED AT 14:07:28 ON 21 MAR 2004

1 S 2-CHLOROMANDELIC ACID/CN

FILE 'CAPLUS' ENTERED AT 14:08:16 ON 21 MAR 2004

13 S 10421-85-9/PREP

6 S 10421-85-9/PROC

19 S L2 OR L3

2 S L4 AND CYANOHYDRIN

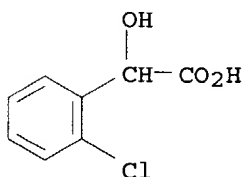
>



L5 ANSWER 1 OF 2 CAPLUS COPYRIGHT 2004 ACS on STN  
 ACCESSION NUMBER: 2001:489604 CAPLUS  
 DOCUMENT NUMBER: 135:89140  
 TITLE: Producing enantiomerically pure  $\alpha$ -substituted  
 carboxylic acids using stereospecific nitrilases in  
 the presence of Strecker reagents  
 INVENTOR(S): Madden, Mark; Weiner, David Paul; Chaplin, Jennifer  
 Ann  
 PATENT ASSIGNEE(S): Diversa Corp., USA; Madden, Darcy  
 SOURCE: PCT Int. Appl., 87 pp.  
 CODEN: PIXXD2  
 DOCUMENT TYPE: Patent  
 LANGUAGE: English  
 FAMILY ACC. NUM. COUNT: 7  
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2001048175	A2	20010705	WO 2000-US35555	20001229
WO 2001048175	A3	20020214		
W:		AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CR, CU, CZ, DE, DK, DM, DZ, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM		
RW:		GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG		
EP 1242589	A2	20020925	EP 2000-989578	20001229
R:		AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR		
JP 2003521899	T2	20030722	JP 2001-548688	20001229
PRIORITY APPLN. INFO.:			US 1999-173609P	A2 19991229
			US 2000-254414P	A2 20001207
			WO 2000-US35555	W 20001229

OTHER SOURCE(S): CASREACT 135:89140; MARPAT 135:89140  
 AB Enantiomerically pure  $\alpha$ -substituted carboxylic acids, such as, for example,  $\alpha$ -amino acids and  $\alpha$ -hydroxy acids, are produced using a stereoselective nitrilase enzyme which is active under Strecker conditions, i.e., in the presence of cyanide and ammonia. Thus, an aldehyde or ketone is combined with a cyanide and ammonia or an ammonium salt or an amine, in the presence of a nitrilase or a polypeptide having nitrilase activity which stereoselectively hydrolyzes the amino nitrile or **cyanohydrin** intermediate under conditions sufficient to produce the carboxylic acid. Such nitrilases designated BD1911 and BD1921 were found in microorganisms from an environmental sample and overexpressed by cloning in *Pseudomonas*.  
 IT **10421-85-9P**, 2-Chloromandelic acid  
 RL: BPN (Biosynthetic preparation); SPN (Synthetic preparation); BIOL (Biological study); **PREP (Preparation)**  
 (producing enantiomerically pure  $\alpha$ -substituted carboxylic acids using stereospecific nitrilases in the presence of Strecker reagents)  
 RN **10421-85-9** CAPLUS  
 CN Benzeneacetic acid, 2-chloro- $\alpha$ -hydroxy- (9CI) (CA INDEX NAME)



ACCESSION NUMBER: 1992:510131 CAPLUS  
 DOCUMENT NUMBER: 117:110131  
 TITLE: Enzymic manufacture of  $\alpha$ -hydroxyamides or  
 $\alpha$ -hydroxy acids from nitriles and aldehydes  
 INVENTOR(S): Endo, Takakazu; Yamagami, Tomohide; Tamura, Koji  
 PATENT ASSIGNEE(S): Nitto Chemical Industry Co., Ltd., Japan  
 SOURCE: Eur. Pat. Appl., 17 pp.  
 CODEN: EPXXDW  
 DOCUMENT TYPE: Patent  
 LANGUAGE: English  
 FAMILY ACC. NUM. COUNT: 1  
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
EP 486289	A2	19920520	EP 1991-310490	19911113
EP 486289	A3	19930224		
EP 486289	B1	19970709		
R: DE, FR, GB				
JP 05192189	A2	19930803	JP 1991-325076	19911114
US 5326702	A	19940705	US 1991-791523	19911114
PRIORITY APPLN. INFO.:			JP 1990-308269	19901114

OTHER SOURCE(S): MARPAT 117:110131

AB  $\alpha$ -Hydroxyamides and  $\alpha$ -hydroxyacids are manufactured from aldehydes and cyanohydrins using a microorganism under conditions that minimize enzyme inhibition or toxicity by aldehydes. The concentration of the aldehyde is kept low and the incubation is conducted in the presence of sulfite, disulfite, or dithionite. The manufacture of mandelic acid from mandelonitrile (14 mM) by *Alcaligenes BC35-2* as a function of  $\text{Na}_2\text{SO}_3$  concentration was studied. Maximum yields were observed at 50-100 mM  $\text{Na}_2\text{SO}_3$  with an yield of 8.0-8.4 mM R(-)mandelic acid (optical purity 98%).

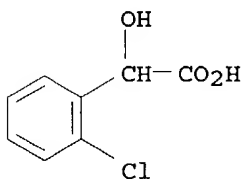
IT 10421-85-9P

RL: PREP (Preparation)

(preparation from cyanohydrin of, enzymic)

RN 10421-85-9 CAPLUS

CN Benzeneacetic acid, 2-chloro- $\alpha$ -hydroxy- (9CI) (CA INDEX NAME)



=> s mandelic acid/cn  
L8 1 MANDELIC ACID/CN

=> d

L8 ANSWER 1 OF 1 REGISTRY COPYRIGHT 2004 ACS on STN  
RN 90-64-2 REGISTRY  
CN Benzeneacetic acid,  $\alpha$ -hydroxy- (9CI) (CA INDEX NAME)

OTHER CA INDEX NAMES:

CN **Mandelic acid (7CI, 8CI)**

OTHER NAMES:

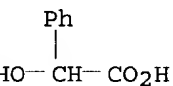
CN ( $\pm$ )- $\alpha$ -Hydroxybenzeneacetic acid  
CN ( $\pm$ )- $\alpha$ -Hydroxyphenylacetic acid  
CN ( $\pm$ )-2-Hydroxy-2-phenylethanoic acid  
CN ( $\pm$ )-Mandelic acid  
CN (RS)-Mandelic acid  
CN  $\alpha$ -Hydroxy- $\alpha$ -toluic acid  
CN  $\alpha$ -Hydroxybenzeneacetic acid  
CN  $\alpha$ -Hydroxyphenylacetic acid  
CN 2-Hydroxy-2-phenylacetic acid  
CN 2-Phenyl-2-hydroxyacetic acid  
CN 2-Phenylglycolic acid  
CN Almond acid  
CN Amygdalic acid  
CN DL-Amygdalic acid  
CN DL-Hydroxy(phenyl)acetic acid  
CN dl-Mandelic acid  
CN DL-Mandelic acid  
CN NSC 7925  
CN Paramandelic acid  
CN Phenylglycolic acid  
CN Phenylhydroxyacetic acid  
CN Uromaline  
FS 3D CONCORD  
DR 611-72-3, 15769-78-5, 71036-61-8  
MF C8 H8 O3  
CI COM

LC STN Files: ADISNEWS, AGRICOLA, ANABSTR, BEILSTEIN\*, BIOBUSINESS, BIOSIS,  
BIOTECHNO, CA, CABA, CANCERLIT, CAOLD, CAPLUS, CASREACT, CBNB, CEN,  
CHEMCATS, CHEMINFORMRX, CHEMLIST, CIN, CSCHM, CSNB, DDFU, DETHERM\*,  
DRUGU, EMBASE, GMELIN\*, HODOC\*, IFICDB, IFIPAT, IFIUDB, IPA, MEDLINE,  
MRCK\*, MSDS-OHS, NAPRALERT, NIOSHTIC, PDLCOM\*, PROMT, RTECS\*, SPECINFO,  
SYNTHLINE, TOXCENTER, USAN, USPAT2, USPATFULL, VTB

(\*File contains numerically searchable property data)

Other Sources: DSL\*\*, EINECS\*\*, TSCA\*\*

(\*\*Enter CHEMLIST File for up-to-date regulatory information)



L13 ANSWER 1 OF 5 CAPLUS COPYRIGHT 2004 ACS on STN

ACCESSION NUMBER: 2002:502358 CAPLUS  
DOCUMENT NUMBER: 137:369820  
TITLE: Chemo-enzymatic synthesis of enantiomerically pure  
(R)-2-naphthylmethoxyacetic acid  
AUTHOR(S): Kimura, Mayumi; Kuboki, Atsuhito; Sugai, Takeshi  
CORPORATE SOURCE: Department of Chemistry, Keio University, Hiyoshi,  
Yokohama, 223-8522, Japan  
SOURCE: Tetrahedron: Asymmetry (2002), 13(10), 1059-1068  
CODEN: TASYE3; ISSN: 0957-4166  
PUBLISHER: Elsevier Science Ltd.  
DOCUMENT TYPE: Journal  
LANGUAGE: English

AB Enantiomerically pure (R)-2-naphthylmethoxyacetic acid (2-NMA) was  
synthesized from 2-naphthaldehyde via an integrated chemo-enzymic  
procedure. The one-pot, successive use of SnBr<sub>2</sub>-TMSCN and AcBr worked  
effectively to give a racemic **cyanohydrin** acetate. Lipase from  
Burkholderia cepacia then mediated the highly enantioselective  
**hydrolysis** of the (S)-enantiomer of the racemate, leaving the  
(R)-acetate with an e.e. of >99.9%. The resulting product of this  
enzyme-catalyzed **hydrolysis**, an (S)-**cyanohydrin**,  
spontaneously decomposed into naphthaldehyde, the starting material of this  
synthetic route, which could be recycled. The hydration of nitrile to  
amide as well as the **hydrolysis** of the acetate was performed  
with a microorganism, Rhodococcus rhodochrous, under very mild conditions  
without any loss of the enantiomeric purity. The amide group was  
**hydrolyzed** with nitrosylsulfuric acid, and the product was  
isolated as an  $\alpha$ -hydroxy ester. The  $\alpha$ -hydroxyl group was  
methylated with diazomethane-silica gel, and the final task,  
**hydrolysis** of the ester, was accomplished under conditions as mild  
as neutral pH with an esterase from Krebsiella oxytoca to give  
enantiomerically pure 2-NMA.

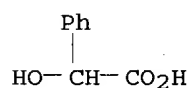
IT 90-64-2P

RL: BPN (Biosynthetic preparation); BIOL (Biological study); **PREP**  
(Preparation)

(asym. preparation of (R)-2-naphthylmethoxyacetic acid from 2-naphthaldehyde  
via **cyanohydrin** formation using SnBr<sub>2</sub>-TMSCN and AcBr, lipase  
catalyzed **hydrolysis**, Rhodococcus catalyzed nitrile hydration  
and **hydrolysis**, and esterase **hydrolysis**)

RN 90-64-2 CAPLUS

CN Benzeneacetic acid,  $\alpha$ -hydroxy- (9CI) (CA INDEX NAME)



REFERENCE COUNT: 85 THERE ARE 85 CITED REFERENCES AVAILABLE FOR THIS  
RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

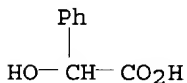
L13 ANSWER 2 OF 5 CAPLUS COPYRIGHT 2004 ACS on STN

ACCESSION NUMBER: 2001:489604 CAPLUS  
DOCUMENT NUMBER: 135:89140  
TITLE: Producing enantiomerically pure  $\alpha$ -substituted  
carboxylic acids using stereospecific nitrilases in  
the presence of Strecker reagents  
INVENTOR(S): Madden, Mark; Weiner, David Paul; Chaplin, Jennifer  
Ann  
PATENT ASSIGNEE(S): Diversa Corp., USA; Madden, Darcy  
SOURCE: PCT Int. Appl., 87 pp.  
CODEN: PIXXD2  
DOCUMENT TYPE: Patent  
LANGUAGE: English  
FAMILY ACC. NUM. COUNT: 7  
PATENT INFORMATION:

PATENT NO. KIND DATE APPLICATION NO. DATE

WO 2001048175 A2 20010705 WO 2000-US35555 20001229  
 WO 2001048175 A3 20020214  
 W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN,  
 CR, CU, CZ, DE, DK, DM, DZ, EE, ES, FI, GB, GD, GE, GH, GM, HR,  
 HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT,  
 LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, PL, PT, RO, RU,  
 SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, US, UZ, VN,  
 YU, ZA, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM  
 RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZW, AT, BE, CH, CY,  
 DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, TR, BF,  
 BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG  
 EP 1242589 A2 20020925 EP 2000-989578 20001229  
 R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT,  
 IE, SI, LT, LV, FI, RO, MK, CY, AL, TR  
 JP 2003521899 T2 20030722 JP 2001-548688 20001229  
 PRIORITY APPLN. INFO.: US 1999-173609P A2 19991229  
 US 2000-254414P A2 20001207  
 WO 2000-US35555 W 20001229

OTHER SOURCE(S): CASREACT 135:89140; MARPAT 135:89140  
 AB Enantiomerically pure  $\alpha$ -substituted carboxylic acids, such as, for  
 example,  $\alpha$ -amino acids and  $\alpha$ -hydroxy acids, are produced using  
 a stereoselective nitrilase enzyme which is active under Strecker  
 conditions, i.e., in the presence of cyanide and ammonia. Thus, an  
 aldehyde or ketone is combined with a cyanide and ammonia or an ammonium  
 salt or an amine, in the presence of a nitrilase or a polypeptide having  
 nitrilase activity which stereoselectively **hydrolyzes** the amino  
 nitrile or **cyanohydrin** intermediate under conditions sufficient  
 to produce the carboxylic acid. Such nitrilases designated BD1911 and  
 BD1921 were found in microorganisms from an environmental sample and  
 overexpressed by cloning in Pseudomonas.  
 IT **90-64-2P**, Mandelic acid  
 RL: BPN (Biosynthetic preparation); SPN (Synthetic preparation); BIOL  
 (Biological study); **PREP (Preparation)**  
 (producing enantiomerically pure  $\alpha$ -substituted carboxylic acids  
 using stereospecific nitrilases in the presence of Strecker reagents)  
 RN 90-64-2 CAPLUS  
 CN Benzeneacetic acid,  $\alpha$ -hydroxy- (9CI) (CA INDEX NAME)



L13 ANSWER 3 OF 5 CAPLUS COPYRIGHT 2004 ACS on STN  
 ACCESSION NUMBER: 1995:789468 CAPLUS  
 DOCUMENT NUMBER: 123:196767  
 TITLE: Process for producing  $\alpha$ -hydroxy acids or  
 $\alpha$ -hydroxyamides by microorganisms  
 INVENTOR(S): Hashimoto, Yoshihiro  
 PATENT ASSIGNEE(S): Nitto Chemical Industry Co., Ltd., Japan  
 SOURCE: Eur. Pat. Appl., 17 pp.  
 CODEN: EPXXDW  
 DOCUMENT TYPE: Patent  
 LANGUAGE: English  
 FAMILY ACC. NUM. COUNT: 1  
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
EP 666320	A2	19950809	EP 1995-300485	19950126
EP 666320	A3	19960529		
EP 666320	B1	20001220		
R: DE, FR, GB				
JP 07213296	A2	19950815	JP 1994-24888	19940128
JP 3354688	B2	20021209		
US 5508181	A	19960416	US 1995-378006	19950125

PRIORITY APPLN. INFO.: JP 1994-24888 A 19940128

OTHER SOURCE(S): CASREACT 123:196767; MARPAT 123:196767

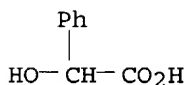
AB A process is disclosed for the production of  $\alpha$ -hydroxy acids or  $\alpha$ -hydroxyamides in which an  $\alpha$ -hydroxynitrile compound or a mixture consisting of an aldehyde and prussic acid, which corresponds to the nitrile compound, is allowed to undergo a microbial reaction to produce the corresponding  $\alpha$ -hydroxy acid or  $\alpha$ -hydroxyamide, wherein the improvement resides in that phosphite ions or hypophosphite ions are allowed to be present in the reaction system. Since **hydrolysis** or hydration of nitrile compds. can be carried out by constantly keeping a low concentration level of aldehydes, which are considered to be a cause of enzyme inhibition in the reaction system, enzyme activity can be maintained for a prolonged period of time and the formed acids or amides can therefore be accumulated in high concentration

IT 90-64-2P, Mandelic acid

RL: BMF (Bioindustrial manufacture); BPN (Biosynthetic preparation); BIOL (Biological study); **PREP (Preparation)**  
(producing  $\alpha$ -hydroxy acids or  $\alpha$ -hydroxyamides from nitriles by microorganisms)

RN 90-64-2 CAPLUS

CN Benzeneacetic acid,  $\alpha$ -hydroxy- (9CI) (CA INDEX NAME)



L13 ANSWER 4 OF 5 CAPLUS COPYRIGHT 2004 ACS on STN

ACCESSION NUMBER: 1994:8028 CAPLUS

DOCUMENT NUMBER: 120:8028

TITLE: Reduction of manganate(VI) by mandelic acid and its significance for development of a general mechanism of oxidation of organic compounds by high-valent transition metal oxides

AUTHOR(S): Lee, Donald G.; Chen, Tao

CORPORATE SOURCE: Dep. Chem., Univ. Regina, Regina, SK, S4S 0A2, Can.

SOURCE: Journal of the American Chemical Society (1993), 115(24), 11231-6

CODEN: JACSAT; ISSN: 0002-7863

DOCUMENT TYPE: Journal

LANGUAGE: English

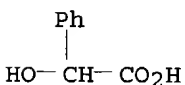
AB A study of the oxidation of mandelic acid and cyclobutanol by manganate(VI) indicated that reaction mechanisms traditionally applied to oxidns. of this type (i.e., hydrogen atom or hydride ion transfers) may not be correct. Instead it appears that the reaction may be initiated by a 2 + 2 addition of the  $\alpha$ -C-H bond to a manganese oxo double bond.

IT 90-64-2P, Mandelic acid

RL: SPN (Synthetic preparation); **PREP (Preparation)**  
(preparation of, via silyl ether of **cyanohydrin**)

RN 90-64-2 CAPLUS

CN Benzeneacetic acid,  $\alpha$ -hydroxy- (9CI) (CA INDEX NAME)



L13 ANSWER 5 OF 5 CAPLUS COPYRIGHT 2004 ACS on STN

ACCESSION NUMBER: 1989:533627 CAPLUS

DOCUMENT NUMBER: 111:133627

TITLE: Hydration of cyanohydrins in weakly alkaline solutions of boric acid salts

AUTHOR(S): Jammot, Jacqueline; Pascal, Robert; Commeyras, Auguste

CORPORATE SOURCE: Univ. Sci. Tech. Languedoc, Montpellier, 34060, Fr.

SOURCE: Tetrahedron Letters (1989), 30(5), 563-4

CODEN: TELEAY; ISSN: 0040-4039

DOCUMENT TYPE:

Journal

LANGUAGE:

English

OTHER SOURCE(S):

CASREACT 111:133627

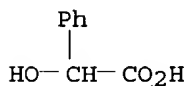
AB  $\alpha$ -Hydroxy amides and  $\alpha$ -hydroxy acids were prepared in satisfactory yield by heating aldehyde-derived cyanohydrins in aqueous solution in the presence of borax or alkaline borates. Thus,  $\text{MeS}(\text{CH}_2)_2\text{CH}(\text{OH})\text{CN}$  was treated with aqueous borax and KCN to give 83%  $\text{MeS}(\text{CH}_2)\text{CH}(\text{OH})\text{CONH}_2$ . Addition of excess NaOH to the above reaction mixture after **hydrolysis** and then refluxing for 3 h gave 90%  $\text{MeS}(\text{CH}_2)_2\text{CH}(\text{OH})\text{CO}_2\text{H}$ .

IT 90-64-2P, Mandelic acid

RL: SPN (Synthetic preparation); **PREP (Preparation)**  
(preparation of, via borate-catalyzed **hydrolysis** of  
**cyanohydrin**)

RN 90-64-2 CAPLUS

CN Benzeneacetic acid,  $\alpha$ -hydroxy- (9CI) (CA INDEX NAME)



L1 FILE 'REGISTRY' ENTERED AT 14:07:28 ON 21 MAR 2004  
1 S 2-CHLOROMANDELIC ACID/CN

L2 FILE 'CAPLUS' ENTERED AT 14:08:16 ON 21 MAR 2004  
L3 13 S 10421-85-9/PREP  
L4 6 S 10421-85-9/PROC  
L5 19 S L2 OR L3  
2 S L4 AND CYANOHYDRIN  
S MANDELIC ACID/CN

L6 FILE 'REGISTRY' ENTERED AT 14:12:27 ON 21 MAR 2004  
1 S MANDELIC ACID/CN

L7 FILE 'CAPLUS' ENTERED AT 14:12:27 ON 21 MAR 2004  
3191 S L6

FILE 'REGISTRY' ENTERED AT 14:12:56 ON 21 MAR 2004

L8 FILE 'REGISTRY' ENTERED AT 14:13:08 ON 21 MAR 2004  
1 S MANDELIC ACID/CN

L9 FILE 'CAPLUS' ENTERED AT 14:13:56 ON 21 MAR 2004  
L10 210 S 90-64-2/PREP  
L11 366 S 90-64-2/PROC  
L12 567 S L9 OR L10  
L13 8 S L11 AND CYANOHYDRIN  
L14 5 S L12 AND HYDROL?  
L15 0 S L12 AND HYDROL? AND WATER  
0 S L12 AND HYDROL? AND CRYST?

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